TRAIL & Landscape

A PUBLICATION CONCERNED WITH
NATURAL HISTORY AND CONSERVATION

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T R A I L & L A N D S C A P E

THE OTTAWA FIELD-NATURALISTS' CLUB

- Founded 1879 -

President: Dr. T. Mosquin, Box 86, Aylmer East, Quebec
Secretary: Mr. A. W. Rathwell, Can. Wildlife Service

Objectives of the Club: To promote the appreciation, preservation and conservation of Canada's natural heritage; to encourage investigation and publish the results of research in all fields of natural history and to diffuse information on these fields as widely as possible; to support and co-operate with organizations engaged in preserving, maintaining or restoring quality environments for living things.

Club Publications: THE CANADIAN FIELD-NATURALIST, official journal of the Club, devoted to the publishing of research in natural history. TRAIL & LANDSCAPE, a non-technical publication of general interest to local naturalists.

Field Trips, Lectures and other natural history activities are arranged for local members. See inside back cover.

Membership and Subscription Fees:
INDIVIDUAL MEMBERSHIP: $5.00 per year
FAMILY MEMBERSHIP: $7.00 per year; includes husband, wife, and dependent children. One copy of each publication will be sent to a household.
SUBSCRIPTION TO TRAIL & LANDSCAPE only...(no membership privileges): $3.00 per year.

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Apply to The Ottawa Field-Naturalists' Club,
Box 3264 Postal Station C, Ottawa 3

YOU ARE INVITED TO BECOME A MEMBER

TRAIL & Landscape

Vol 4 No 5

Published by
THE OTTAWA FIELD-NATURALISTS' CLUB

Editor: Mrs. G. R. Hanes
18 Briarcliffe Drive
Ottawa 9, Canada

An Editor's View ....

In this space in T&L we have occasionally hit the NCC for various actions we regarded as insults to the environment, especially in Gatineau Park (herbicide spraying of walking trails, cutting or burying rare plants, etc.). These ecological mistakes, we concluded in July 1967, might be avoided in future were the NCC to add a naturalist to its staff. Rumour has it that one was almost hired, but there is no naturalist, biologist or ecologist on the NCC staff today.

We were all shocked to be told (in the Sept. 1969 issue) that Gatineau Park is unprotected by legislation defining it as a natural or wilderness area. Further, Mr. Ede, Director of Parks and Grounds for the NCC, told us, "there never has been a comprehensive statement of underlying philosophy" to guide NCC decisions on either development or preservation of the Park. Mr. Ede said he hoped it would not be long before a public statement could be made. No statement has come from the NCC to date, while speculation mounts concerning the latest development plan (see page 145). This way of "playing its hand close to its vest", as the Citizen editor put it, invites suspicion and apprehension.

It's with a feeling of relief, and a great pleasure, to applaud the NCC for a change. Its recent decisions to ban snowmobiles from Gatineau Park, and to build trails for walkers and cyclists throughout the driveway system are great steps in the direction of preserving the natural landscape and encouraging recreation that is healthier, for citizens and the environment, than that promoted by commercial interests.

This apparent change of direction, we're convinced, is largely due to the pressure of public opinion, expressed to the NCC and to the newspapers. We hope that all who wrote urging a snowmobile ban for the Park will be as quick to show appreciation for the decision (the snowmobilers have not promised to comply quietly!) and to back the NCC publicly when we approve its actions.

...A. H.

NOTES ON

BOG ECOLOGY

by

Donald A. Smith

Department of Biology

Carleton University

Ottawa

In recent years local conservationists within and outside the OFNC have been and still are promoting the preservation and management of the Mer Bleue, the 6300-acre bog a few miles east of Ottawa, in its present almost natural state for scientific, educational and cultural purposes in perpetuity. Last year, to document our present knowledge and to stimulate further research, The Canadian Field-Naturalist commenced publication of a series of papers entitled "Scientific and Cultural Studies of the Mer Bleue". Moreover, the informative and stimulating articles by George McGee (T&L 1(2),1967) and Joyce Dunston (T&L 4(1),1970) have undoubtedly stimulated many readers of T&L to visit the Mer Bleue in search of birds and plants respectively. In the expectation that local and visiting naturalists will be making more and more visits to this unique natural asset of our area, and on the assumption that their appreciation of such an environment would be enhanced

by having some background knowledge of it and its inhabitants, the following notes on bog ecology are presented. They refer to bogs in general, not just to our Mer Bleue, although most of the generalizations do apply to it, as do the concluding paragraphs.

A bog is a complex, dynamic community of plants and a few incidental animals living under particular physical conditions which are still not completely understood. In dealing with the basic ecology of a bog, let us consider the special, rigorous conditions under which it forms and develops, the succession of plants that inhabit and modify it, some of the peculiar adaptations of these bog plants, and finally the animals that dwell in bogs.

Bogs are typical of glaciated parts of the north temperate zone where the climate is cool and moist. Here they tend to form wherever local excesses of soil water accumulate in glacial or river basins from which the run-off is restricted. Because the substratum is constantly water-logged with stagnant water, it has a very low oxygen saturation. Here too, carbon dioxide tends to accumulate and form carbonic acid. Moreover, as the bog develops, humic acids, breakdown products of dead bog mosses, heaths and conifers increase the acidity of bog waters. Furthermore bog water is typically brown, cool and has a low dissolved salt content. Deficient aeration and acidity drastically inhibit or prevent decay of dead organic matter so that undecayed or partially decayed plant material accumulates in bogs as peat. The situation is thereby aggravated because peat, especially that derived from Sphagnum moss, has great affinity for metallic ions and gives off hydrogen ions in exchange, further increasing the acidity.

Water collected in a poorly drained glacial basin forms the habitat for submersed or floating pioneer plants such as algae or duckweeds. As the water becomes shallower because the depression gradually fills with the dead bodies of the pioneers, yellow pond lilies and pondweeds may take root in the bottom while their leaves float on the surface or protrude above it. Eventually these, like the submerged plants, die out because they are intolerant of the increasing acidity, and their bodies contribute to the growing organic layer on the bottom.

Meanwhile, the water is being filled in from the top as well as from the bottom as emergent plants such as sedges and cotton-grasses are growing in tufts around the shallow margins of the basin. They have light, buoyant, much-branched rhizomes from whose nodes interlaced tangles of roots extend into the water to form a floating mat. New shoots arise annually from the floating network which grows inward from the periphery of the incipient bog over open water, while its older peripheral parts increase in thickness.

Concurrently peat-moss (Sphagnum) fills the spaces in the sedge network, forming an organic matrix for the continued growth of the sedges. Cushion-like clumps of moss grow upward and laterally so that the mat thickens and extends. Meanwhile the older, lower layers of Sphagnum die, but remain unconsolidated and scarcely decayed as peat which holds water like an enormous sponge. This resilient, floating sedge-moss mat, from whose physical characteristics the term 'quaking bog' is derived, may now be invaded by chain-ferns, a variety of orchids, and certain insectivorous plants. Gradually their dead bodies add to the accumulation of those of the earlier arrivals to make the mat drier and more stable, and it is now invaded by a host of low, much-branched shrubs such as heaths (leatherleaf, bog rosemary, sheep and pale laurel, Labrador tea, cranberries, etc.), sweet gale or dwarf birch. Frequently high shrubs such as chokeberry and mountain holly, and trees such as larches and black spruces invade the sedge-Sphagnum-heath mat, which has by now become grounded, and eventually the latter form a bog forest which may persist for a long time, provided that climatic, soil and water conditions do not change. Frequently fires temporarily set back the succession but the area gradually returns to bog forest. Most of the successional stages referred to may be seen in a typical bog, frequently in concentric rings around a central core of open water in small bogs, but in older bogs the domed mat eventually obliterates the open water completely, as is the case in the Mer Bleue.

Bogs afford rather rigorous conditions for plants in several ways, and the relatively few species that inhabit them have developed special modifications which adapt them to these conditions.

(1) Although bogs contain water in abundance, they are said to be 'physiologically dry'. The deficiency of oxygen, low temperature, high acidity and perhaps accumulation of toxic substances inhibit the uptake of water by roots. Indeed many bog species, particularly woody ones, show marked xeric features similar in many respects to those of plants dwelling in truly arid environments.
(2) Although the roots of some bog plants (sedges, cotton-grass, etc.) can grow under water, the depth of penetration of roots of most species is limited by the water level as well as by the lack of aeration. Because there is little mechanical resistance to growth, the shallow roots tend to be straight and horizontal. This is particularly true of tamarack (larch) trees which lack tap roots and which may be toppled by strong winds exposing the whole shallow root system.
(3) Bog plants are very poorly supplied with mineral salts and organic nutrients. In mesic situations, the decay of organic material is brought about in a stepwise fashion by a host of soil bacteria and fungi, each group of organisms being responsible for one of the many degradative steps. In bogs, however, decay processes are notoriously slow or incomplete, probably because low

PALE LAUREL (Kalmia polifolia) flowers in profusion in Mer Bleue at beginning of June, east end of Ridge Road

SHEEP LAUREL (Kalmia angustifolia)

temperature, high acidity, and accumulation of toxins interfere with the activity of the microorganisms necessary for more complete decay. The more conspicuous result already referred to is the accumulation of undecayed or only partly decayed organic matter as peat, while the more serious result to plants is the failure of essential organic nutrients to be released in a usable form.

This is best exemplified by the case of nitrogen, which is indispensable to all plants. Nitrogen is normally made available to plants by the fixation of atmospheric nitrogen by bacteria or by the breakdown of proteins of either plant or animal origin. In the latter process proteins are broken down through a series of intermediates to amino acids which are deaminated, releasing nitrogen as ammonia which is rapidly converted to ammonium salts. Normally these are oxidized to nitrites and then to nitrates which can be taken up by higher plants. In bogs, however, the organisms bringing about nitrogen fixation and nitrification are inhibited so that protein nitrogen remains in the form of ammonium salts which cannot be taken up by higher plants. Thus most plants are prevented from inhabiting bogs.

Round-leaved sundew in sphagnum

Pitcher plants near sedge lip of floating mat

Author and children study leatherleaf and cottongrass of Mer Bleue

(Lorraine C. Smith)

The true bog plants, however, have solved this problem. Heaths, orchids and perhaps other bog plants are dependent on the existence of mycorrhiza, associations of minute fungi with their roots, which are capable of taking up ammonium salts and processing them so that their nitrogen can be utilized by the host plants. As their mycorrhiza cannot tolerate alkaline conditions, these plants are restricted to acid soils.

In passing, it might be noted that a few bog plants have solved the problem of obtaining nitrogen in another rather interesting way. These are the insectivorous plants, sundew and pitcher plants, which attract, capture and digest insects to obtain organic nitrogen for protein synthesis!

Although some bog plants are restricted to bogs, others such as larches can flourish elsewhere if given the opportunity. This suggests that they 'tolerate' rather than 'prefer' these physiologically dry habitats with poor supplies of nitrogen. They are usually found in bogs, however, because here they are able to compete with other plants while in more generally favourable habitats they cannot.

In the early stages of bogs, invertebrate animals, mainly rotifers, protozoans and insects typical of ponds and marshes, are found in or on the central open water areas, but gradually the low oxygen level and increasingly high acidity tend to keep the numbers of species and individuals low.

Some groups such as molluscs are typically absent because of the virtual absence of calcium carbonate. Certain dragonflies have adapted to life in the acidic waters of bogs, however, and the eggs, larvae, and pupae of one species of mosquito, and one species of mite develop and live unharmed only in the protein-digesting enzyme-laden water within pitcher-plant leaves! Various butterflies and other insects are adapted to feed on bog plants, but again the number of species is not large compared to the 'mainland' situation.

All photos by the author (except where noted)

Among the vertebrates, very few fishes are able to survive in bog water. Leopard and wood frogs and American toads are sometimes common on bog mats. In spite of the variety of birds found around bogs, relatively few birds inhabit the interior of sedge or heath bogs; occasionally yellowthroats and Lincoln's sparrows do, however, and the bog forest close to them often supports interesting species such as yellow-bellied and olive-sided flycatchers, palm and Nashville warblers. Several species of shrews and voles frequently live in sedge-heath-Sphagnum bogs but they are usually much rarer there than in nearby forest habitats.

Bogs, then, are areas of wet, porous 'soil' characterized by lack of drainage and of aeration, and by the concomitant conditions of acidic, brown water and peaty soil, low in content of dissolved mineral salts, and especially in nitrogen, with low sub-surface temperatures, poor bacterial and fungal flora, with a relatively small fauna, and with a restricted but typical flora of mosses and higher plants that have become adapted to tolerate the rigorous conditions obtaining there. Of all these characteristics, the key to the whole situation is without doubt the blocked drainage.

Clearly, the very existence of a bog depends on maintaining its water level by restricting the run-off or, rather, by not increasing the drainage! No matter whether the water level of either half a bog or of a whole bog was disturbed, by means of efficient drainage ditches or by removing large amounts of peat commercially, I am convinced that the result would be the same. Because of the single basin in which the bog formed, drainage of part means drainage of the whole. In a bog freed of its water-logged condition, aeration would be improved, decay organisms would flourish, the essential acidic conditions would be lost, the mycorrhiza on which many bog plants depend would die and so would their hosts and the interesting species of insects and other animals that are associated with the bog vegetation. Moreover, a dried-out peat bog is very susceptible to fire, and once started, a sub-surface peat fire can persist for years. Whether or not the dead and dying vegetation were burned, the altered bog would likely gradually be invaded by fireweed, bracken, aspens and birch.

This fate could befall the Mer Bleue, our only easily accessible area typical of the vast areas of the Boreal Forest Region. What is now a unique and valuable ecological feature would likely revert in time to just another example of the scrub woodland typical of much of eastern Ontario.

Thus it is probable that the Mer Bleue Peat Bog because of its very constitution could not continue to exist if its water relations were altered by disturbance of the eastern half. Public acquisition of this half can prevent its disturbance and maintain the whole area. Failure to do so might result in the loss of the whole of this valuable local and national asset. The Mer Bleue is so important to students, researchers and applied workers in the natural sciences and to citizens who enjoy the unspoiled natural surroundings which I hope will continue to be the heritage of Canadians that it must be saved. It is my hope that these notes will help naturalists to understand the ecology of bogs such as the Mer Bleue, and increase their appreciation of the intricate balance of peculiar physical conditions and the species adapted to them. I also hope that by increasing public awareness of the natural features of the Mer Bleue and other bogs, they will play some small part in furthering the cause of their preservation for our own and future generations.

LEATHERLEAF flowers

GRASS PINK orchid

More For the Asking....Write to: Department of Lands and Forests, Parliament Buildings, Toronto 5, Ontario.

THE WHITE-TAILED DEER IN ONTARIO Another clear, factual and fascinating account of a popular wildlife species in our Province, written from the experience of those whose chief concern for the animals is their management as Big Game. Although a passing nod is given to the "nature lover and camper" who thrills to see a deer, the species is managed for the benefit of the 150,000 legally licenced hunters in Ontario whose cash flows out among guides, restaurants, service stations, hotels, and to the Provincial Government in licence revenue, gas and sales taxes. The naturalist (a consumer and taxpayer on a smaller scale) may be concerned that this management is achieved largely through alterations to the landscape: "range management" to arrest natural forest succession at a point which provides optimum carrying capacity through the critical winter months. Description, occurrence, life history and habits of the whitetail are given, and an interesting capsule history of the deer (and man) in Ontario. The factors determining size of a deer population in a given area are explained in graphic, understandable terms. You can even learn how to estimate the winter population of an area. Howls of wolf-haters have evidently been noticed - "many people have strong opinions about wolves" - and a patient, balanced discussion gives the score on the wolf's role in the world of deer. No attempt is made to justify use of bounties as a management tool. (3562 bounties were paid in 1969 in the name of saving deer.)

WILDLIFE LAND MANAGEMENT FOR ONTARIO LANDOWNERS is even more strongly oriented to those whose main interest in wildlife is as a crop. The emphasis is on management of habitat: soil, water and plants. The Introduction says, "In developing your plan, we hope you realize a property that is more pleasing to live on, not only for wildlife but for you, the landowner." Although no mention at all is made of hunting, the aim is implicit in the 13 following sections which deal entirely with game birds and animals, and management of habitat for same. Of course, the naturalist landowner will also learn some valuable methods of attracting and holding wildlife, game and non-game, but no clue is given as to how you manage the hunters who would surely follow the bonanza you provided! ... A. H.

NPPAC Meeting on Gatineau Park - A Report

CRISIS IN GATINEAU PARK was the theme of the first public meeting of the recently formed Ottawa-Hull Chapter of the National and Provincial Parks Association of Canada (NPPAC) on September 22. Before about 250 people, a panel discussed the history of Gatineau Park and the outlook for its future in the light of NCC plans for urban-type development. Moderator was J. A. Keith. Lively comment from the floor followed the prepared talks, and panelists attempted to answer audience questions.

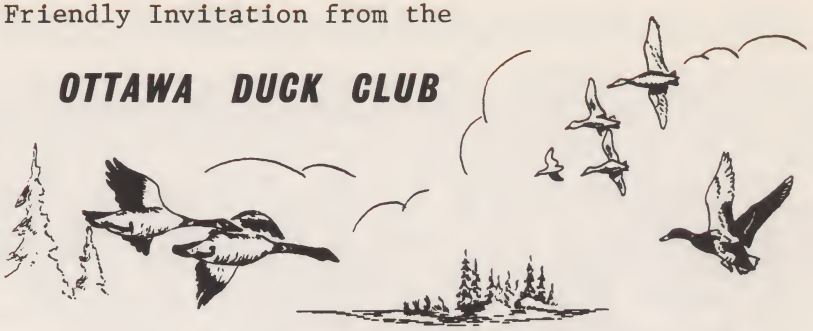
T. Mosquin spoke about government reports from 1903 to 1950 which called for creation and preservation of a large wilderness park in the Gatineau. Until 1965, the NCC's publicity echoed this theme. Then, unannounced to the public, came a new policy, embodied in the 1967 confidential planning document, "Development Concept". D.A. Smith described this document which downgrades conservation in favour of development, tourism, and recreation. Guided by the Concept, an outside consultant prepared a detailed and confidential plan which was presented to the NCC in July 1970.

R. Pratt pledged the support of Pollution Probe for the NPPAC stand on Gatineau Park. I.M. Brodo spoke of the many educational uses of the Park. Its value for scientific study, later confirmed by scientists in the audience, was described by C.A. Barlow, who posed the alternatives which face us: exploit the Park for short-term advantage (and so destroy it) or preserve it for the long term values.

Preservation for the long term, the NPPAC believes, can be accomplished only through legislation. To secure this permanent protection, a petition has been prepared asking that Parliament "amend the National Capital Act in a way that will ensure the continued integrity of this natural park." Copies of the petition were presented at the meeting; audience members were invited to sign, and to take copies with them for others to sign. The petition is being circulated across Canada.

If you wish to obtain a copy to circulate among friends and co-workers, phone Mrs. Hanes (749-2400).

A Friendly Invitation from the



Fellow members of the Ottawa Field-Naturalists'

I am, like many of my associates, a member in both the Ottawa Duck Club and your organization. It is in the capacity of the Duck club that I am writing this letter. In case anyone doesn't know this organization, or has any misconceptions about it, perhaps you would let me describe their aims.

The Ottawa Duck Club members are noted for being hunters of ducks and geese - yes, this is so. It was because of this fact and their concern for ducks and geese that they got together and formed their club. Their motto is "BETTER HUNTING THROUGH CONSERVATION AND EDUCATION". The idea behind this is, if you are going to hunt, at least do it right; know what you may hunt, and hunt only that. Leave the hawks, gulls, herons, etc. alone. Learn to be a good shot, and how and where to hunt so that if only 5 birds are allowed, you will get your 5 birds and stop shooting, not maybe wound or kill 50 unrecovered birds to get your 5 - it's a disgrace the number of birds that are wounded and unrecovered in one season in North America. As I say, this is to help conservation by making better hunters. (You are saying, well, don't hunt! Well, not even the law can stop hunting, and poachers are devastating, so this is the next best thing.)

Now no one can be a true sport hunter without becoming concerned with nature, so this Club became concerned and involved with vigorous conservation. The Ottawa Duck Club was fortunate to acquire the use of the vast area at Shirley's Bay back of the butts on which to work. The Ontario Department of Lands and Forests had faith in the club and asked them to assist

Don't go anywhere without a large green garbage bag. When you get to your picnic or camp site, rush around dragging your bag and pick up all the trash. It takes only a few minutes, and then you can really enjoy your picnic. It is no longer enough just to pick up your own trash. After all, these wild places belong to you - and you don't leave trash on your front lawn, do you? Also, if the place is clean, others coming behind you are likely to keep it that way. Trash seems to attract more trash. Our family have cleaned up seven camp sites and dozens of picnic places this year alone. Think what all of us could do. Litter may not damage health, but it certainly degrades the quality of our environment. Don't let it continue to build up until all our wild places are ruined for us. Join the green bag club.

Tip: Large pieces of trash in the city can be dragged to the nearest road. Phone your alderman or public works, and they will send a truck after it. The NCC will do the same for their roads. If you see anyone dumping within the city of Ottawa, get the licence number and get in touch with Public Works at City Hall. I have been told that they will prosecute. Get groups of young people interested in maintaining small areas.

Nancy McAllister
August 19, 1970

Photos opposite:

The OFNC's First Annual (?) Trash Collecting Expedition up the trail from Luskville Falls to the Fire Tower. A group leaves the top of the escarpment with part of the load: mostly soft drink and beer cans and bottles, candy and cigarette wrappings, tossed aside by idiots who couldn't care less about the next person.

The day's haul - all 265* lbs. of it - left at Luskville Picnic Ground for pick-up by NCC truck.
*(doesn't include boy!)

THE GREEN BAG CLUB

Don't go anywhere without a large green garbage bag. When you get to your picnic or camp site, rush around dragging your bag and pick up all the trash. It takes only a few minutes, and then you can really enjoy your picnic. It is no longer enough just to pick up your own trash. After all, these wild places belong to you - and you don't leave trash on your front lawn, do you? Also, if the place is clean, others coming behind you are likely to keep it that way. Trash seems to attract more trash. Our family have cleaned up seven camp sites and dozens of picnic places this year alone. Think what all of us could do. Litter may not damage health, but it certainly degrades the quality of our environment. Don't let it continue to build up until all our wild places are ruined for us. Join the green bag club.

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The OFNC at Innis Point

July 4, 1970

Our leader of the day Dr. Bill Dore dipped into a large fund of botanical eye-openers to show is some wonders of woods and fields near Ottawa. In inspired and entertaining style he enlarged our understanding of how our plants came to be here, how they compete among themselves and cope with their environments.

Innis point has many plants not found elsewhere in the Ottawa District.

For the orchid-conscious a highlight was discovery of a few plants of SHINING LADIES'-TRESSES, Spiranthes lucida, a species new for the Ottawa list of the Orchid Location Survey.

candid camera: G.R. Hanes

"There's not another one from here to the North Pole"

"This must be the main cable to Shirley's Bay"

TREASURE IN HELL'S CANYON

Anne Hanes

Any hike into Gatineau Park can turn into an adventure of discovery for the observant. While it is rewarding just to be surrounded by the rich colours, rugged contours and fantastic details of this wild and beautiful park, it offers a special excitement for the naturalist. There is nothing that stirs a naturalist quite so much as discovering a species of organism, whether bird, snail or orchid, which hasn't been seen before in his particular stamping ground. Gatineau Park seems to have an unlimited supply of surprises. On a recent hike through Hell's Canyon I was stopped in my tracks by a fern that looked different. Fellow hiker Sheila Thomson supplied its name - Braun's holly fern (or eastern holly fern) - and the gratifying information that this handsome species was known from only one other location in the whole Ottawa area.

In his book, Ferns of the Ottawa Area, W.J. Cody wrote of the eastern holly fern (Polystichum braunii), "Very rare; known only from the Chelsea-Old Chelsea-Kingsmere area, where it is found in deep woods in sheltered ravines. Until recently this plant was thought to be extinct in the District. It was first discovered by James Fletcher in 1891, and until it was rediscovered in 1952 by a member of the Fern Group of the Ottawa Field-Naturalists' Club, it had not been seen since John Macoun collected it in 1911."

By a coincidence, I recently received copies of some old Newsletters of the Club, including the issue of September 1952. In it, that "member of the Fern Group", Gladys Bauche, tells of the sensational rediscovery of Braun's holly fern, which had not been seen for 41 years. An exciting moment, but it posed an immediate problem for Mrs. Bauche, which she describes: "The thrill of finding the first plant of Braun's holly fern and my dismay and bewilderment when I could find no others will never be forgotten. If it was rare, it should be left. If it was left, animal or insect might destroy it, and there would be no evidence it had been found. Should the plant be collected or left?

The damp, rock-encircled enclosure was reached by following up a rocky creek. The boulder-strewn opening is crossed by other creeks. It is a dark, eerie place even on a sunny day." Fortunately, she persisted in the search and eventually located about 20 plants.

No such problem bothered us concerning the latest discovery although only one small plant was seen that day, with darkness approaching. Two weekends later we returned with more time, and took a census of holly ferns in Hell's Canyon: 27 plants at the least. They grow among, between and under other ferns and shrubs, and there could well be more of them there.

Hell's Canyon is a rocky ravine in deep woods. At the head of the canyon an old beaver dam in good working order holds back a sizable pond. It releases water steadily into a small stream, which tumbles through the narrow gorge between walls of damp rock and then winds across a soggy fern-covered opening in the woods. The holly ferns grow on the lower ledges of pink rock cliffs where the gorge widens, or cling to rocks just above the wet meadow, filled with sensitive and ostrich ferns, below the ravine. Although especially rich in ferns, Hell's Canyon is not very different from other rocky stream valleys in Gatineau Park. It seems to be off the beaten track, botanically. Trail-skiers, who are probably responsible for its colourful name, have used it for many years. Hikers have certainly been there before, but evidently no botanist has looked it over, for its treasure would hardly be kept a secret by any naturalist worth his membership in the OFNC!

1911...1952...1970...when and where will Braun's holly fern be found next?

If your litter will disgrace
And spoil the beauty of this place,
May indigestion rack your chest,
And ants invade your pants and vest.

Ceylon Pleasure Garden sign

WHAT ON EARTH ??

Nature Puzzle # 3
Marguerite Sweers

Spruce trees on a
snow-covered hillside?
Take a closer look ...

Did Bank Swallows nest
here? Don't bank on it!

Did Bank Swallows nest
here? Don't bank on it!

B & W PHOTOGRAPHERS, PLEASE NOTE!

It is hoped that a competition will be held next spring for material for the 1972 Conservation Calendar. The fine photographs of Marguerite Sweers and the success of the 1971 Calendar should inspire club members to capture more of the local natural scene on film. Rules for the contest will be published in the next issue of T&L. A showing will be arranged of the prints submitted - your chance to show us what you have been doing. We hope you've had a good summer, photographically, and there's still time to take some good fall and winter pictures. Get outdoors now and start shooting. In the spring, show us your best!

NATURE PUZZLES are evidently catching your eye and teasing your brain, so we will continue to run them as long as the supply lasts. How about a contribution? Puzzle #1, in the Summer issue, showed an eastern gray treefrog, Hyla versicolor, on a lichen-covered boulder. (He's about 1¼" long, dead centre of photo, facing left.) Puzzle #2, in Sept., featured the results of a snail's dinner. The snail had methodically grazed its way through the algae growing on the old birch bark, leaving a graphic record of its progress. Another OFNC member tells us he has seen similar tracks on the surface of "fairy steps" (polypore fungus).
Puzzle #3: We'll give you time to think about these and publish the answers in January.

HELP T&L production staff urgently need one more proofreader, to assist one evening every two months. Call B. Coleman, 829-0847, for a job.

I N D E X to Volume Four

(Cont'd over.....

O F N C EVENTS IN NOVEMBER & DECEMBER

arranged by the Excursions and Lectures Committee
Ewen C. D.Todd, Chairman

Tuesday 3 November **THE FUTURE OF THE GREENBELT IN THE NATIONAL CAPITAL REGION**

A panel discussion with representatives from the National Capital Commission and the Ontario Department of Lands and Forests, chaired by the President. Members are invited to join in the discussion during the course of the evening.

Place: Auditorium National Museum, McLeod St.
Time: 8:00 p.m.

Saturday 14 November **BIRD TRIP TO THE GATINEAU**

Trip to Gatineau Park including a walk over the Skyline Trail. Dress warmly and bring a lunch.

Meet: Health & Welfare Bldg. Tunney's Pasture
Time: 8:00 a.m.
Leader: Bill Holland

Tuesday 8 December **ANNUAL BUSINESS MEETING**

The meeting will include reports for 1970 and election of officers for 1971.

Place: Auditorium Nat. Library & Archives Bldg.
Time: 8:00 p.m.

SAVE! SAVE! SAVE! The New Edition of NATIVE TREES OF CANADA will be on sale at the Annual Meeting for $4.50 (10 per cent off QP price). Contact Trevor Cole if you want your copy sooner.

TRAIL & LANDSCAPE

published by

THE OTTAWA FIELD-NATURALISTS' CLUB

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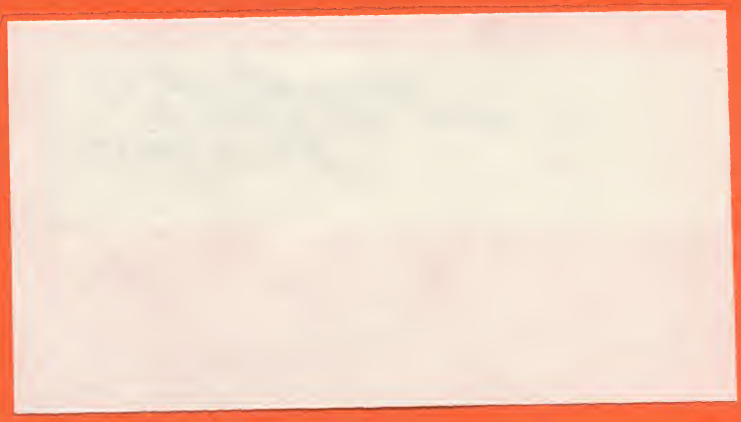

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